

REMARKS

Reconsideration of the application, as amended, is respectfully requested.

I. STATUS OF THE CLAIMS

Claims 1-19 are currently pending. Claims 1, 7 and 15 have been amended herewith to more particularly point out and distinctly claim that which Applicants regard as their invention. In particular, claims 1 and 15 have been amended to further clarify that the processing chamber is treated to be substantially free of hydrogen by etching the processing chamber with a plasma of a non-hydrogenous second gas. Moreover, claim 7 has been amended herewith to further clarify that the processing chamber is etched with a plasma of the second gas to prevent hydrogen radicals or chemical compounds having hydrogen from forming or remaining in the processing chamber.

Support for the above amendments may be found throughout the specification as originally filed. No new matter has been added by virtue of this amendment.

II. 35 U.S.C. 103(a) REJECTIONS

(i) Claims 1-4, 7-9, 11, 13-17 have been rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 6,649,082 to Hayasaka et al. ("the Hayasaka patent") in view of U.S. Patent No. 5,647,953 to Williams et al. ("the Williams patent").

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (See MPEP 2143.03; *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)).

However, the combination of Hayasaka with Williams fails to teach or suggest all of the limitations recited in claims 1, 7 and/or 15 of the present claimed invention.

As conceded in the instant Office Action, Hayasaka fails to teach or suggest all the features of claims 1, 7 and 15. In particular, the Office Action states that Hayasaka "is silent

about the specificities of cleaning the inside surfaces of the apparatus” of claims 1, 7 and 15.
(See page 4, lines 1-2 of the instant Office Action).

It is further submitted that even if Hayasaka and Williams were combined in the manner set forth in the instant Office Action, this combination would still fail to teach or suggest all of the limitations recited in claims 1, 7, and/or 15.

As noted above, claims 1 and 15 have been amended to further clarify that the processing chamber is treated to be substantially free of hydrogen by etching the processing chamber with a plasma of a non-hydrogenous second gas. Moreover, claim 7 has been amended herewith to further clarify that the processing chamber is etched with a plasma of the second gas to prevent hydrogen radicals or chemical compounds having hydrogen from forming or remaining in the processing chamber.

In particular, the above combination of Hayasaka and Williams at the very least fails to teach or suggest a method for cleaning a processing chamber which includes treating the processing chamber to be substantially free of hydrogen by etching the processing chamber with a plasma of a non-hydrogenous second gas, as recited in claims 1 and 15. For example, exemplary embodiments of the present invention **on page 8, lines 23-24, page 9, lines 1-20, pages 17, lines 1-23, page 18, lines 1-14 and pages 19-25 of the present specification** describe how, why and for what reason the processing chamber is treated as recited in method claims 1 and 15 to result in the processing chamber being substantially free of hydrogen.

In contrast, Williams teaches a very distinct cleaning method for cleaning a processing chamber from that recited in claims 1 and 15. Rather, Williams describes a treatment process for cleaning a process chamber which includes a cleaning step, a coating step and a conditioning step. However, gaseous hydrogen compounds such as, for example, silane SiH_4 , disilane Si_2H_2 and/or water vapor are injected into the processing chamber as part of the cleaning/treatment process of the processing chamber in Williams. **(See Col. 4, lines 44-67 and Col. 5, line 1-11 of Williams).**

As Williams injects and utilizes gaseous hydrogen compounds within the processing chamber as part of its cleaning/treatment of the processing chamber, Williams clearly at the very least fails to teach or suggest cleaning methods which produce a processing chamber which is substantially free of hydrogen, as required by claims 1 and 15. Consequently, even if the teachings of Williams in connection with cleaning a processing chamber were combined with Hayasaka in the manner set forth in the Office Action, this combination would at the very least fail to teach or suggest a method for cleaning a processing chamber which includes treating the processing chamber to be substantially free of hydrogen by etching the processing chamber with a plasma of a non-hydrogenous second gas, as recited in claims 1 and 15.

Therefore, withdrawal of the above rejection to claims 1 and 15 is respectfully requested. As claims 2, 3 and 4 depend from and incorporate all of the limitations of claim 1 and claims 16 and 17 depend from and incorporate all of the limitations of claim 15, withdrawal of the rejection to these dependent claims is likewise requested.

With regard to the rejection of claim 7, it is submitted that the combination of Hayasaka with Williams as proposed in the instant Office Action likewise fails to teach or suggest all of the features of this claim for similar reasons as set forth above with regard to claims 1 and 15. In particular, as noted above, Williams describes injecting hydrogen gas compounds such as SiH_4 disilane Si_2H_2 and/or water vapor into the processing chamber as part of the cleaning/treatment process. As Williams utilizes gaseous hydrogen compounds within the processing chamber, in the above manner, as part of its cleaning/treatment process of the processing chamber, hydrogen radicals and/or chemical compounds may therefore form and/or remain in the processing chamber. Thus, even if the teachings of Williams in connection with cleaning a processing chamber were combined with Hayasaka in the manner set forth in the Office Action, this combination would at the very least fail to teach or suggest a method for cleaning a processing chamber which includes etching the processing chamber with a plasma of the second gas to prevent hydrogen radicals or chemical compounds having hydrogen from forming or remaining in the processing chamber, as recited in claim 7.

Therefore, withdrawal of the above rejection to claim 7 is respectfully requested. As claims 8, 9, 11, 13 and 14 depend from and incorporate all of the limitations of claim 7, withdrawal of the rejection to these dependent claims is likewise requested.

(ii) Claims 5, 6, 10, 12, 18 and 19 have been rejected under 35 U.S.C. 103(a) as being obvious over Hayasaka in view of Williams and in further view of U.S. Patent No. 5,660,682 to Zhao ("the Zhao patent") or U.S. Patent No. 6,992,011 to Nemoto et al. ("the Nemoto patent"), each one individually.

Initially, it is noted that Nemoto does not qualify as prior art with respect to any of the pending claims, including those claims rejected above. Namely, the effective filing date of Nemoto is after the foreign priority date claimed under 35 U.S.C. 119 by the present application to Korean Patent Application No. 2002-64554. Specifically, the effective filing date of Nemoto is January 15, 2003, whereas the priority date claimed by the present application is October 22, 2002. (Korean Patent Application No. 2002-64554). Thus, Nemoto is clearly not prior art with respect to any of the pending claims of the present application, including those claims rejected above.

In this regard, pursuant to **MPEP 201.15**, enclosed herewith for the purposes of overcoming the effective date of Nemoto is an English translation of the certified copy of the above Korean priority application, together with a statement that the translation of the certified copy of this priority application is accurate.

Therefore, for the reasons set forth above, Nemoto does not constitute prior art and thus cannot be relied upon to support the current claim rejections under 35 U.S.C. 103(a). Accordingly, the claim rejections under 35 U.S.C. 103(a) based upon the Nemoto are legally deficient on their face and, consequently, must be withdrawn.

With regard to the above rejections based upon the combination of Hayasaka, Williams and Zhao, it is submitted that this combination fails to teach or suggest all of the features recited in claims 5, 6, 10, 12, 18 and 19.

As noted above, the combination of Hayasaka and Williams at the very least fails to teach or suggest a method for cleaning a processing chamber which includes treating the processing chamber to be substantially free of hydrogen by etching the processing chamber with a plasma of a non-hydrogenous second gas, as recited in claims 1 and 15. Additionally, as noted above, the combination of Hayasaka and Williams also at the very least fails to teach or suggest a method for cleaning a processing chamber which includes etching the processing chamber with a plasma of the second gas to prevent hydrogen radicals or chemical compounds having hydrogen from forming or remaining in the processing chamber, as recited in claim 7. As claims 5, 6 depend from and incorporate all of the limitations of claim 1, claims 10 and 12 depend from and incorporate all of the limitations of claim 7 and claims 18 and 19 depend from and incorporate all of the limitations of claim 15, the combination of Hayasaka and Williams likewise fails to teach or suggest all of the features of these dependent claims as well.

Thus, even if the alleged teachings of Zhao with regard to processing parameters for removing silicon oxide from silicon/integrated circuit surfaces were combined with Hayasaka and Williams in the manner proposed in the instant Office, this combination would still fail to teach or suggest all of the limitations recited in claim 5, 6, 7, 18 and 19. In particular, the above combination of Hayasaka, Williams and Zhao at the very least fails to teach or suggest, (i) a method for cleaning a processing chamber which includes treating the processing chamber to be substantially free of hydrogen by etching the processing chamber with a plasma of a non-hydrogenous second gas, as recited in claims 1 and 15 and/or (ii) a method for cleaning a processing chamber which includes etching the processing chamber with a plasma of the second gas to prevent hydrogen radicals or chemical compounds having hydrogen from forming or remaining in the processing chamber, as recited in claim 7.

Therefore, withdrawal of the above rejection to claims 5, 6, 10, 12, 18 and 19 is requested.

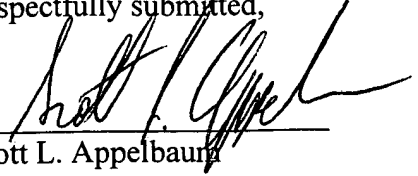
III. CONCLUSION:

For the foregoing reasons, the present application, including claims 1-19, is believed to be in condition for allowance. The Examiner's early and favorable action is respectfully

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requested. The Examiner is invited to contact the undersigned if he has any questions or comments in this matter.

Respectfully submitted,



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